

ABSTRACT OF THE DISCLOSURE

[00308] A drive circuit (18) produces a drive signal for a pump (10) having a piezoelectric actuator (14), with the piezoelectric actuator (14) forming a part of the drive circuit (18) and serving to shape a waveform of the drive signal. The drive circuit (18) comprises a pulse generator (100) which generates pulses; a converter circuit (102) which receives the pulses and produces charge packets at a rate which equals a desired drive frequency; and, the piezoelectric actuator (14). The piezoelectric actuator (14) receives the charge packets and, by its capacitive nature, integrates the charge packets to shape the waveform of the drive signal. Preferably, the piezoelectric actuator (14) integrates the charge packets to yield a drive field that approximates a sine wave. In one non-limiting example embodiment, the pulse generator (100) comprises a microcontroller-based pulsed width modulator (PWM) circuit (116) and the converter circuit (102) comprises a flyback circuit.